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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,069	07/25/2003	Martin E. Fermann	IMRAA.021A	2229
20995	7590	08/08/2005	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			FLORES RUIZ, DELMA R	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			2828	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/627,069

Applicant(s)

FERMANN ET AL.

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2, 6-9, 14-27, 31, 32, and 35 - 65 is/are pending in the application.
- 4a) Of the above claim(s) 2, 6-9, 14-27, 31-32 and 50-64 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 35-41, 45-49 and 65 is/are rejected.
- 7) ☒ Claim(s) 42-44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/15/05, 10/27/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Group I, a claim 35 – 49 and 65 in the reply filed on 06/09/2005 is acknowledged. The traversal is on the ground(s) that the applicant don't argument why is the election is with traverse. This is not found persuasive because the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)).

The requirement is still deemed proper and is therefore made FINAL.

Claims 2, 6 –9, 14 – 27, 31 – 32 and 50 - 64 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected restriction, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 06/09/2005.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 04/15/2005 and 10/27/2003 have been considered by the examiner.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the film of a semiconductor material implanted with high-energy ions at a penetration depth, which differs from the penetration depth of optical signals reflected from said saturable absorber mirror, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 35, 36, 45 – 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaneko (US 2002/0105711 A1).

***Regarding claim 35***, Kaneko discloses a saturable absorber mirror for passive modelocking of lasers, comprising: a film (see Fig. 2 Character 154) of a semiconductor material implanted with high energy ions at a penetration depth which differs from the penetration depth of optical signals reflected from said saturable absorber mirror (Fig. 2, Paragraphs 11 and 13) .

**Regarding claim 36**, Kaneko discloses the thickness of said film is selected to be in the range of 50 nm-2000 nm (Paragraph 70,  $1\mu\text{m} = 1000\text{nm}$ ).

**Regarding claims 45 – 47**, Kaneko discloses a semiconductor film comprises a combination of a bulk semiconductor and a multiple quantum well structure (Paragraphs 53, 55 and 65).

**Regarding claim 48**, Kaneko disclose a film of a semiconductor material implanted with high-energy ions at a penetration depth which is smaller than the penetration depth of optical signals reflected from said saturable absorber mirror (Fig. 2, Paragraphs 2 and 13).

Claim 65 is rejected under 35 U.S.C. 102(e) as being anticipated by Hong et al (2003/0147134).

**Regarding claim 65**, Hong discloses a InGaAsP fabricated with a bandgap in the 1.0-1.1  $\mu\text{m}$  wavelength region (Paragraph 56).

Discloses Figure 2 by Kaneko (US 2002/0105711)

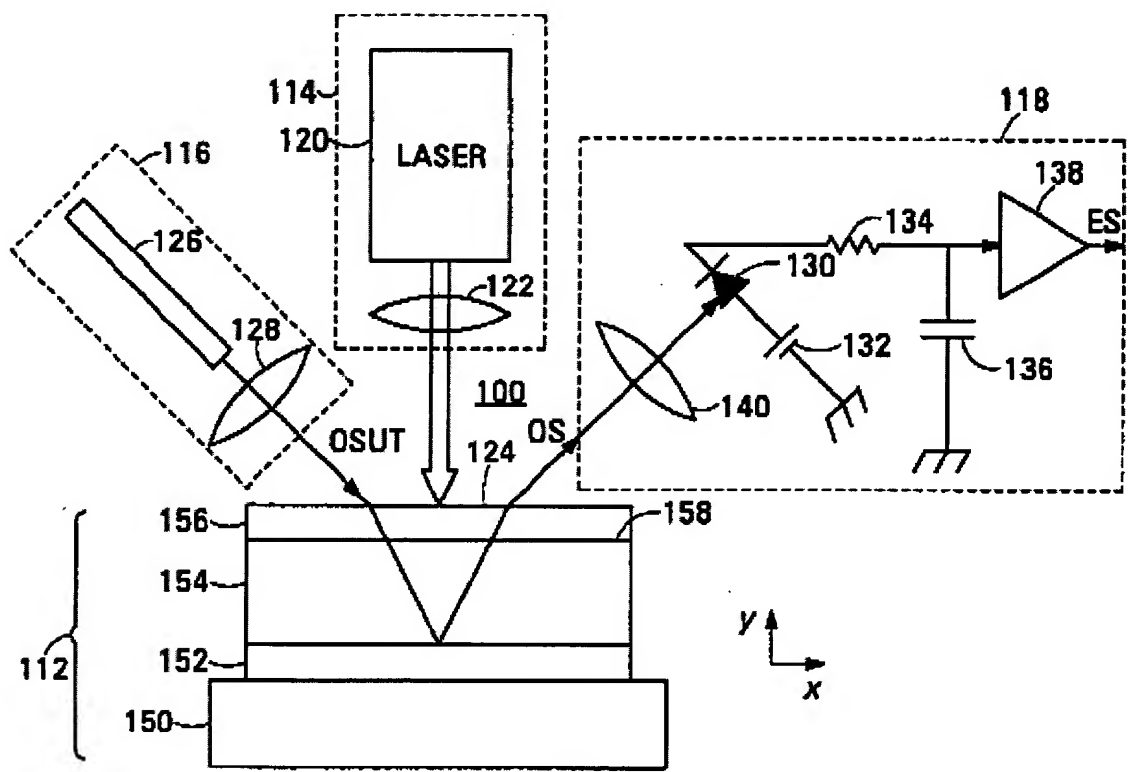


FIG.2

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 49 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al (2001/0034089).

**Regarding claim 49,** Yamazaki discloses a saturable absorber to be operated in transmission for passive modelocking of lasers, comprising: a film of a semiconductor material implanted with high energy ions at a penetration depth which is smaller than the thickness of said film (Paragraph 29).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 37 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko (US 2002/0105711 A1) in view of Ooi et al (US 2002/0072142 A1)

**Regarding claims 37 – 40**, Kaneko discloses the claimed invention except for high energy ions comprise protons, arsenic or beryllium; implantation dosage of said high energy ions is in a range  $10^{12}$ - $10^{17}$  ions/cm<sup>2</sup>, high energy ions comprise arsenic, and wherein the implantation energy is in the range of 100 keV-1000 keV. Ooi discloses a high energy ions comprise protons, arsenic or beryllium; implantation dosage of said high energy ions is in a range  $10^{12}$ - $10^{17}$  ions/cm<sup>2</sup>, high energy ions comprise arsenic, and wherein the implantation energy is in the range of 100 keV-1000 keV. It would have been obvious at the time of applicant's invention, to combine Ooi of teaching a energy ions comprise protons, arsenic or beryllium; implantation dosage of said high energy ions is in a range  $10^{12}$ - $10^{17}$  ions/cm<sup>2</sup>, high energy ions comprise arsenic, and wherein the implantation energy is in the range of 100 keV-1000 keV (Paragraphs 66, 84 and 85) with saturable absorber because generated relatively shallow point defects in the implanted material and, thus, produced no direct damage to the QW layers.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko (US 2002/0105711 A1) in view of Goedertier (3,500,234).

**Regarding claim 41**, Kaneko discloses the claimed invention except for one surface of mirror is anti-reflection-coated. Goedertier discloses surface of mirror is anti-reflection-coated. It would have been obvious at the time of applicant's invention, to .

combine Goedertier of teaching a said mirror is anti-reflection-coated with saturable absorber because anti-reflection coating use to decrease reflection losses at the interface of said one end and said saturable absorber (claim 3).

### ***Allowable Subject Matter***

Claims 42 – 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



Delma R. Flores Ruiz

Examiner

Art Unit 2828

DRFR/MH

July 26, 2005



JAMES

MENEFE

for Min Sun Harvey  
Supervisor Patent Examiner  
Art Unit 2828